



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/649,933	08/28/2003	Seo-Hyun Cho	1349.1280	6101
21171 7590 01/23/2007 STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			EXAMINER VO, ANH T N	
			ART UNIT	PAPER NUMBER
			2861	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		01/23/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/649,933	CHO ET AL.	
	Examiner	Art Unit	
	Anh T.N. Vo	2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

NON-FINAL REJECTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/16/06 has been entered.

Claim Objection

Claim 39 is objected to because of the following informalities: "a volume" on lines 10-11 should be --the volume-- for proper support. Appropriate correction is required.

Claims Rejections

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 39 is rejected under 35 USC 102 (e) as being anticipated by Kim et al. (US Pat. 6,623,092).

Kim et al discloses in Figures 2-3 an ink cartridge comprising:

- an ink chamber (160, Figure 3) having a volume of ink;
- a negative pressure generating medium chamber (120) having a volume of ink;
- a partition (110) for separating the ink chamber (160) and the negative pressure generating medium chamber (120);
- a top surface (top of the cartridge);
- a bottom surface (bottom of the cartridge) below the top surface; and
- wherein the partition (110) extends downwardly from the top surface and does not contact the bottom surface, and the volume of the ink in the negative pressure generating medium chamber (120) is greater than a volume of the ink in the ink chamber (160).

Claim Rejections - 35 U.S.C. § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-38 are rejected under 35 USC 103 (a) as being unpatentable over Kim et al. (US Pat. 6,623,092) in view of Tsukuda (US Pat. 6,234,615).

Kim et al. disclose in Figures 2-3 an ink cartridge comprising:

- at least one first chamber (160) storing an ink;
- at least one second chamber (120) having an air inflow hole (124) formed at an upper portion thereof to be exposed to an ambient air and an ink supply portion (132) formed at a lower portion thereof and having an ink supply port supplying an ink, the second chamber containing with a negative pressure generating medium (122) storing the ink;

Art Unit: 2861

- an intermediate partition (110) having a connecting hole (112) defined in a lower portion thereof, connecting the first and the second chambers (160, 120) to each other, the intermediate partition (110) dividing the first and the second chambers (160, 120);
- wherein the third face comprises an inclined surface (an unmarked inclined surface is at bottom wall of an chamber 120) extending toward the ink supply portion (132) from a position, which is separated by a predetermined distance from a third vertical plane vertically extending from a second wall of the intermediate partition facing the second chamber by a predetermined distance, the inclined surface being inclined at a predetermined obtuse angle with respect to a horizontal surface;
- wherein a lower surface of the negative pressure generating medium (122) to expand in the second chamber (120) adjacent to the intermediate partition (110) is inclined at an angle corresponding to the angle of the inclined surface before the negative pressure generating medium expands in the second chamber, thereby preventing the negative pressure generating medium from being compressed and expanding in a substantially triangular space defined by an extended plane from the inclined surface of the third face, a non-inclined surface of the third face, and the third vertical plane as the negative pressure generating medium expands in the second chamber;
- wherein the obtuse angle of the inclined surface is measured from a non-inclined portion of the third face;
- wherein the third face (an unmarked bottom wall of a chamber 160) comprises a horizontal surface portion parallel to the horizontal plane.
- wherein the ink cartridge comprises magenta, cyan, and yellow ink chambers (Fig. 2);
- wherein the medium chamber (120) contains a negative pressure generating medium (122) including a porous material, wherein the porous material is foam to store ink;
- a filter (130) on a stand pipe between the medium (122) and the ink supply port (132) to guide a flow of the ink;
- wherein a portion of the base of the ink cartridge (100) in the medium chamber side (120) is inclined at an angle between 90 and 180 degrees from a non-inclined portion of the base toward the ink supply portion (132) (Fig. 3); and
- wherein the inclined portion prevents air bubbles from horizontally moving toward the ink

supply port (132); and

- wherein a lower surface of the medium (122) has an inclined angle substantially corresponding to the angle of the inclined surface.

However, Kim et al. do not disclose that a first volume is larger than a second volume; wherein the first volume being defined by a first face forming an ink contact surface of the negative pressure generating medium adjacent the connection hole, a second face forming a bottom surface of the intermediate partition in the connecting hole, a third face forming a bottom of the ink cartridge, and a first vertical plane extending vertically from a center plane of the intermediate partition and the second volume being defined by the first vertical plane, the second face, the third face, and a second vertical plane extending vertically from a wall of the intermediate partition facing the first chamber as recited in claims 1 and 15; the corner of the cut out of the medium is inclined or stepped as recited in claims 27-28, 34-35 and 37, and the inclined position begins at a position within the ink chamber side as recited in claims 29-31. For example, the medium (122) of Kim et al does not include a cut-out corner at the connecting hole (112) so that the medium (122) does not create a first volume and a second volume as claimed, and the inclined portion of the bottom wall begins at a position inside the second ink chamber (120) instead of being inside of the first ink chamber (160).

Tsukuda suggests in Figures 1 and 3A-3C an ink tank (8B) comprising a partitioned wall (30W), a first chamber (30B), a second chamber (30A) and a porous member (32) having a corner in a rounded shape at a connecting hole (30T). The rounded corner of the porous member creates first volume and a second volume as claimed for providing a stable negative pressure immediately after a replenishing operation, see lines 40-45, column 9.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to make the corner of porous member of Kim et al rounded as suggested by Tsukuda for the purpose of providing a stable negative pressure immediately after a replenishing operation. Noted that the modified porous member with a rounded corner of Kim et al in view of Tsukuda would create the claimed first volume and the claimed second volume.

Although Kim et al in view of Tsukuda does not specify that the cut-out medium is inclined or stepped, and the declined wall of the bottom wall includes a inclined position which begins inside the first chamber (160); however, a skilled artisan realizes that the cut out corner can be cut in different shapes to enhance the negative pressure and the transfer of ink between the chambers, and the inclined wall can be rearranged as claimed for accommodating with the size and shape of a cartridge holder of a predetermined printing device in which the modified ink cartridge of Kim et al is to be used. Thus, selecting an optimum shape of the cut-out corner or rearranging the declined wall as claimed is considered to be a matter of a mechanical design expedient for an engineer. In re Daily, 357 F.2d 669, 149 USPQ 47 (CCPA 1966). See MPEP 2144.04. Lacking of showing any criticality, it would have been obvious to one having ordinary skill in the art at the time the invention was made to select the shapes for the cut-out corner of the modified premium of Kim et al as claimed for the purpose of enhancing the negative pressure and the transfer of ink between the chambers, and rearranging the declined wall of the ink cartridge for the purpose of accommodating with the size and shape of a predetermined holder.

With regarding claim 38, placing the porous member to contact the third face (bottom) is suggested in Figure 1 of Tsukura.

Response to Applicant's Arguments

The applicant argues at page 9 of the amendment that Tsukuda fails to teach or suggest “wherein a first volume is larger than a second volume” as recited in claim 1. The argument is not persuasive because the corner of the porous member (32) at the partitioned hole (30T) in Figure 1 of Tsukuda makes an angle with the partitioned wall (30W). The angle creates a first volume being larger than a second volume as claim.

The applicant argues at page 10 of the Amendment that Tsukuda teaches away the limitations in the first chamber is larger than the second volume in the second chamber. The argument is not persuasive because this limitation is suggested in the Kim reference as stated above.

The applicant argues that the prior art does not suggest “the negative pressure generating medium contacting the third face” as recited in claim 38. The argument is not persuasive

Art Unit: 2861

because this limitation is suggested in Figure 1 of Tsukuda in which the porous member (32) contacts the bottom of the cartridge for holding ink.

CONCLUSION

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Anh Vo whose telephone number is (571) 272-2262.

The examiner can normally be reached on Tuesday to Friday from 9:00 A.M. to 7:00 P.M..

The fax number of this Group 2861 is (571) 273-8300.

A handwritten signature in black ink, appearing to be 'Anh T.N. Vo', with a long horizontal flourish extending to the right.

ANH T.N. VO
PRIMARY EXAMINER
January 17, 2007